

**PATENT APPLICATION**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of

Docket No: Q67539

Masafumi NISHITANI, et al.

Appln. No.: 10/000,219

Group Art Unit: 1764

Confirmation No.: 9175

Examiner: Thanh P. DUONG

Filed: December 4, 2001

For: GOLF CLUB

**APPEAL BRIEF UNDER 37 C.F.R. § 41.37**

**MAIL STOP APPEAL BRIEF - PATENTS**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

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**I. REAL PARTY IN INTEREST**

The real party in interest is BRIDGESTONE SPORTS CO., LTD. and K. K. ENDO SEISAKUSHO, the assignees of the present application, by virtue of an assignment recorded December 4, 2001 at Reel 012353, Frame 0388.

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## **II. RELATED APPEALS AND INTERFERENCES**

Upon information and belief, there are no other prior or pending appeals, interferences or judicial proceedings known to Appellant's Representative or the Assignee that may be related to, be directly affected by, or have a bearing on the Board's decision in the Appeal.

### **III. STATUS OF CLAIMS**

Claims 1, 3-7, 9-12, and 15-48 are all the claims pending in the application, all stand rejected, and are all the claims that are the subject of the present appeal.<sup>1</sup> Specifically, claims 1, 3-7, 10-12, 17-26, 33-40, and 43-45 stand rejected under 35 U.S.C. § 102(e) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Chen (U.S. Patent No. 6,368,233); claims 24-26, 40, and 46 stand rejected under 35 U.S.C. § 102(e) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as being obvious over Ciasullo (U.S. Patent No. 6,739,984); claims 1, 3-7, 9-12, 15-23, and 43-44 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kosugi et al. (U.S. Patent No. 6,106,142) in view of Shaw et al. (U.S. Patent No. 5,423,535); claims 27-29, 41, and 47 stand rejected under 35 U.S.C. § 102(e) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Peterson (U.S. Patent No. 6,339,869); and claims 30-32, 42, and 48 stand rejected under 35 U.S.C. § 102(e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Galy (U.S. Patent No. 5,971,867).

Claims 2, 8, and 13-14 were previously cancelled.

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<sup>1</sup> The claims on appeal are attached as an appendix to this Brief.

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#### **IV. STATUS OF AMENDMENTS**

The claim amendments presented with the Amendment Under 37 C.F.R. § 1.111 filed September 26, 2006 were entered. Subsequently, the Examiner issued a Final Office Action on December 20, 2006, and Appellant submitted a Notice of Appeal with a Request for Pre-Appeal Review on March 20, 2007.

Accordingly, there are no outstanding, non-entered amendments of the claims in the instant application.

**V. SUMMARY OF THE CLAIMED SUBJECT MATTER**

The following is a concise explanation of the subject matter defined in each of the independent claims and each separately argued dependent claim involved in the instant appeal.

For the Board's convenience, Appellant will first describe the relevant art (*see, e.g.*, Specification ("Spec.") at 1), and then independent claims 1, 7, 21, 24, 27, and 30 and dependent claims 37-42 with reference to exemplary embodiments of the inventions (Spec. at 2-16). This discussion of the exemplary embodiments and the pending claims is provided for explanatory purposes only, and is not intended to limit the scope of the claims.

**The Relevant Art**

Generally, the invention relates to golf club head structures in which a metal head is attached to a shaft. In conventional golf club head structures, metal members of the head are manufactured such that the members (e.g., striking face member, sole member, and hosel member) are fixed to a head body by conventional welding, in which a welding rod is melted together with two pieces to be joined. In such conventional golf club heads, the resultant welding "bead" formed on the welded portion produces a structure having an undesirable appearance. The weight may vary among different heads due to the imprecise addition of welding rod material, and a "sink-like" imperfection in the welded surface may be produced as a result of thermal contraction. Further, the intense heat associated with conventional welding of metal heads can result in the welded portion being hard and brittle. (Spec. at 1:5-20.)

Thus, an object of the present invention provides a metal head for a golf club in which a plurality of metal pieces are fixed together, whose welded portion exhibits an improved appearance, which has a reduced variation in weight, whose welded portion and its vicinity do not become hard or brittle and the imperfection association with the welding bead “sink” is avoided. (Spec. at 1:23-2:13; 16:21-26.)

### **Independent Claims**

#### **Claim 1**

Claim 1 defines a golf club of wood-type having a hollow head body (Spec. at Figs. 1, 2A-2B), comprising a shaft; and a metal head attached to the shaft, wherein the metal head comprises a body having an opening in which a striking face member is disposed, the striking face member including a plurality of metal pieces (Spec. at 7:14-8:20, face member 2, including outer metal piece 8, intermediate metal piece 6, and center metal piece 4); and wherein said plurality of metal pieces are fixed together by laser welding (Spec. at 5:18-6:7; 8:21-9:5) and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the striking face member (Spec. at 4:11-24; 9:6-13).

#### **Claim 7**

Claim 7 defines a golf club of wood-type having a hollow head body (Spec. at Figs. 1, 2A-2B), comprising a shaft; and a metal head attached to the shaft, wherein the metal head comprises a body having an opening in which a striking face member is disposed, the striking

face member including a portion formed through plastic working of a compounded metal plate fabricated through joining a plurality of metal pieces (Spec. at 7:14-8:20, face member 2, including outer metal piece 8, intermediate metal piece 6, and center metal piece 4) made of forged or rolled material by laser welding; and wherein the compounded metal plate is fabricated by fixing together by laser welding the metal pieces so that the metal pieces appear on an outside common surface of the striking face member of the head (Spec. at 5:18-6:7; 8:21-9:5) and the plastic working is performed on the compounded metal to form a curved surface portion of the striking face member (Spec. at 4:11-24; 9:6-13).

Claim 21

Claim 21 defines a golf club of wood-type having a hollow head body (Spec. at Figs. 1, 2A-2B, 3, 8-11), comprising a shaft; and a metal head attached to the shaft, wherein the metal head comprises a plurality of metal pieces (Spec. at 7:14-8:20; 9:14-19; 13:11-22; 14:18-15:2) and wherein the plurality of metal pieces are on an outside common surface of the head and are fixed together by welding, the welding process resulting in a smooth continuous outside common surface (Spec. at 5:18-6:7; 8:21-9:5; 10:4-14; 13:24-14:7; 15:4-14), wherein press forming is performed on the plurality of metal pieces that are fixed together by laser welding to form a curved surface of the outside common surface of the head (Spec. at 4:11-24; 9:6-13; 13:18-12; 15:15-23).



Claim 24

Claim 24 defines a golf club of wood-type having a hollow head body (Spec. at Figs. 10 and 11), comprising a shaft; and a metal head attached to the shaft, wherein the metal head comprises a body having an opening in which a crown member is disposed, the crown member including a plurality of metal pieces (Spec. at 14:18-15:2, crown member 202, including metal pieces 204 and 206); and wherein the metal pieces appear on an outside surface of the crown member and are fixed together by laser welding (Spec. at 5:18-6:7; 15:4-14) and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the crown member (Spec. at 4:11-24; 15:15-23).

Claim 27

Claim 27 defines a golf club of wood-type having a hollow head body (Spec. at Figs. 8-9), comprising a shaft; and a metal head attached to the shaft, wherein the metal head comprises a body having an opening in which a side wall member is disposed, the side wall member including a plurality of metal pieces (Spec. at 13:11-22; side member 102 including center metal piece 104 and outer metal piece 106); and wherein the metal pieces appear on an outside surface of the side wall member and are fixed together by laser welding (Spec. at 5:18-6:7; 13:24-14:7) and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the side wall member (Spec. at 4:11-24; 13:8-12).

Claim 30

Claim 30 defines a golf club of wood-type having a hollow head body (Spec. at Fig. 3), comprising a shaft; and a metal head attached to the shaft, wherein the metal head comprises a body having an opening in which a sole member is disposed, the sole member including a plurality of metal pieces (Spec at 9:14-19, sole member 12 including front metal piece 14 and rear metal piece 16); and wherein the metal pieces appear on an outside surface of the sole member and are fixed together by laser welding (Spec. at 5:18-6:7; 10:4-14) and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the sole member (Spec. at 4:11-24).

**Dependent Claims**

Claims 3 and 9

Claim 3 depends from claim 1 and recites the feature of the metal pieces have different thicknesses. (Spec. at Fig. 1; 7:14-8:19.) Claim 9 depends from claim 7 and recites the feature of the compounded metal plate is fabricated together by fixing metal pieces that have different thicknesses. (*Id.*)

Claims 15 and 16

Claims 15 and 16 respectively depend from claims 1 and 7 and recite the features of the plurality of metal pieces are greater than two. (Spec. at Fig. 1; 7:14-8:19.)

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Claims 37-42

Claims 37-42 respectively depend from claims 1, 7, 21, 24, 27, and 30, and recite the features of laser welding is performed in the same plane on the plurality of metal pieces, which are fixed together by the laser welding as flat surfaces prior to the press forming to form the curved surface portion of the striking face member, outside common surface, crown member, side wall member, or sole member, respectively (Spec. at Figs. 5A-5B, 6A-6B; 5:18-22; 7: 7:2-11; 8:21-9:13; 13:24-14:6; 15:4-14).

**VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

A) Whether claims 1, 7, and 21 are unpatentable under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Chen (U.S. Patent No. 6,368,233) (dependent claims 4-6, 10-12, 17-20, 22-23, 33-36 and 43-45 standing or falling with their respective independent claims);

B) Whether claim 3 is unpatentable under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Chen;

C) Whether claims 37, 38, and 39 are unpatentable under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Chen;

D) Whether claim 24 is unpatentable under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Chen (dependent claims 25-26 standing or falling with independent claim 24);

E) Whether claim 40 is unpatentable under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Chen;

F) Whether claim 24 is unpatentable under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Ciasullo (U.S. Patent No. 6,739,984) (dependent claims 25-26 and 46 standing or falling with independent claim 24);

G) Whether claim 40 is unpatentable under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Ciasullo;

H) Whether claims 1, 7, and 21 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Kosugi et al. (“Kosugi”, U.S. Patent No. 6,106,412) in view of Shaw et al. (“Shaw”, U.S. Patent No. 5,423,535) (dependent claims 4-6, 10-12, 17-20, 22-23, and 43-44 standing or falling with their respective independent claims);

I) Whether claims 3 and 9 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Kosugi in view of Shaw;

J) Whether claims 15 and 16 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Kosugi in view of Shaw;

K) Whether claim 27 is unpatentable under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Peterson (U.S. Patent No. 6,339,869) (dependent claims 28-29 and 47 standing or falling with independent claim 27);

L) Whether claim 41 is unpatentable under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Peterson (U.S. Patent No. 6,339,869);

M) Whether claim 30 is unpatentable under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Galy (U.S. Patent No. 5,971,867) (dependent claims 31-32 and 48 standing or falling with independent claim 30); and

N) Whether claim 42 is unpatentable under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Galy.

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For purposes of this appeal, the dependent claims that stand or fall together with the respective independent claims are indicated above for each ground of rejection. Further, the rejections of the dependent claims that are separately argued are indicated above and by separate headings in the following section.

## VII. ARGUMENT

At least for the reasons discussed below, Appellant submits that the rejections of the claims on appeal are improper, and reversal of each ground of rejection is requested. Appellant turns now to the rejections at issue:

### ***A. Chen – Independent Claims 1, 7, 21***

The rejection of independent claims 1, 7, and 21, as well as the claims dependent therefrom, is improper, as Chen fails to disclose the claimed structure and the Examiner has failed to establish *prima facie* case obviousness.<sup>2</sup>

1. The striking face of Chen is a single piece formed of a single material, not a striking face including a plurality of metal pieces, as claimed.

Claims 1 and 7 recite, *inter alia*, a striking face member including a plurality of metal pieces.<sup>3</sup> Appellant disagrees with the Examiner's characterization of main piece 62 and arcuate piece 64 of Chen as corresponding to the claimed striking face. For instance, as shown in Figures 8 and 9 of Chen, the main piece 62 of the golf club head includes recesses for contact with a golf ball. (Chen at 2:58-64.) However, arcuate piece 64 is provided at the periphery of

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<sup>2</sup> In the following, Appellant will make reference to the Declaration Under 37 C.F.R. § 1.132 of Masaomi Hiruta ("Decl. at \_\_\_\_"), which was submitted with the Response Under 37 C.F.R. § 1.111 filed Sept. 26, 2006 and is attached as an appendix hereto.

<sup>3</sup> Claim 21 recites a "plurality of metal pieces on an outside common surface of the [metal] head", which the Examiner apparently treats analogously to the "striking face" of claims 1 and 7. As such, the identification of elements 62 and 64 of Chen as allegedly corresponding structure to that of claim 21 is in error for similar reasons as discussed with respect to claims 1 and 7.

the actual striking surface, and merely provides a transition between the striking face provided by main piece 62 and the main body 50.

The Examiner has failed to provide any supporting rationale for the alleged interpretation of a transitional arcuate piece, which is never described by Chen as being any part of a striking face, as a striking face member or a piece of the striking face itself. (*See* Response filed Sept. 26, 2006 (“Response”) at 5-6.) Indeed, as is evident from Figures 8 and 9 of Chen, arcuate piece 64 is not provided in a region intended to strike a golf ball. Rather, the arcuate piece, which is shown separate from the main piece having grooves for contact (i.e., striking a golf ball at the point of impact) simply provides transition between the striking face and the main body.

Chen teaches a striking face having a single piece formed of a single material (i.e., titanium), and, as evidenced by the formation of the grooves solely on the main piece 62, the arcuate piece is not a “striking face”. Chen therefore fails to teach or suggest a striking face, as claimed, which includes a plurality of metal pieces. Chen’s teaching of a single piece striking face member and separate “arcuate piece” would likewise not suggest any laser welding and press forming of a plurality of metal pieces, in the manner claimed. (*See* Response at 5-6; Pre-Appeal Brief Conference Request filed March 20, 2007 (“Request”) at 1-2).

2. Chen further does not suggest a laser welded structure in which press-forming is subsequently performed on a plurality of metal pieces fixed together by laser welding, as defined by claim 1, and therefore fails to anticipate all the claim limitations.

Chen also fails to disclose a plurality of metal pieces fixed by laser welding, and does not suggest a structure in which press forming has been performed on the plurality of metal



pieces that are fixed together by laser welding to form a curved surface portion of the striking face member (claims 1 and 7) or plurality of metal pieces on an outside common surface (claim 21). (*See* Response at 6-10.) In the rejection, the Examiner improperly contends, without support, that these features do not impart structural limitation. For instance, the Examiner alleges as follows:

“Regarding claims 1, 4, 6-7, 10, 12, 17-26, and 33-36, Chen discloses a wood-type golf club head having a hollow head body comprising: a shaft (not shown but inherent feature of a golf club); and a striking face 62 including a plurality of metal pieces (main piece 62 of titanium and arcuate piece 64 of stainless steel); a crown member 30 including a plurality of pieces (main piece 32 titanium and annular piece 34 stainless steel[]). The recitation with respect to ‘laser welding, press forming, plastic working, and formed by applying post-machining’ is directed to the method of production, which does not impart structural limitation to the claimed apparatus. Note, the patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See *In re Whorpe* [*sic*], 777 F.2d 695, 698, 277 USPQ 964, 966 (Fed. Cir. 1985) and *In re Fessman*, 489 F.2d 742, 744, 180 USPQ 324 (CCPA 1974). See MPEP 2113.”

(Office Action dated December 20, 2006 (“Office Action”) at 3; emphasis original.)

The Examiner has not given proper consideration to the limitation of “wherein said plurality of metal pieces are fixed together by laser welding and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the striking face member,” as recited by claim 1. Indeed, Chen does not suggest that laser welding is

performed, as claimed, and further fails to teach that press forming is performed on any laser welded pieces of a striking face member.

Rather, Chen suggests that the pieces of the golf club head are simply “welded” together by conventional welding. Conversely, laser welding *followed by* press forming of the laser welded structure, as claimed, imparts structural features which differ from conventionally welded pieces as in Chen.

The Examiner’s allegation that Chen discloses all the “structural” features of claims 1, 7 and 21 is inaccurate because a laser welded structure is in fact structurally distinct from a conventionally welded structure, as Appellant has shown. For instance, as set forth in the Hiruta Declaration, gaps between pieces are necessary for conventionally welding cast or press formed pieces, while gaps are not present when high energy laser welding is used. (*See Decl. at 2-3.*)

Further, the addition of the welding rod to fill the gap increases the weight of the resulting structure to more than the sum of the unwelded pieces. (*See Decl. at 3-4.*) The added weight resulting from the welding rod results in unavoidable manufacturing variations, since the weight of the bead part cannot be controlled. (*See Decl. at 5.*) Also, as noted in the Declaration, if there is a gap existing between metals to be welded, it may be impossible to weld with laser welding, since no welding rod is used to fill the gap. (*See Decl. at 4; Response at 7-8.*)

Moreover, conventional welding imparts *structural changes* in the welding region quite different from laser welding—the resultant structures are not identical. The high energy of laser welding allows for localized melting of the pieces to be welded such that the heat effect on the

surrounding structure is small. Conventional welding, though, results in melting of both the welding rod and a region of the pieces to be welded, such that the gap between the pieces is filled with the melted welding rod. (*See* Decl. at 4; Response at 8.)

Conventional welding further results in a “surface sink” that forms by the contraction of the welding rod material upon cooling. Laser welding does not result in such a bead because the weld is formed by localized heating of the metal pieces at the joint region. (*See* Decl. at 5.)

Still further, the increased heat exposure to a greater area surrounding the joint region in the case of conventional welding produces structural changes that are not found in laser welding. Indeed, a large region of a conventionally welded structure may become brittle, which results in a comparatively weaker structure than laser welding. (*See* Decl. at 5.) A laser welded structure, however, with heat energy precisely applied to a localized focus at the joint, results in the metal surrounding the joint being exposed to lower levels of heat, providing a welded structure differing on a structural level by virtue of less severe exposure to heat.

Thus, Appellant has shown that conventional welding provides welded pieces that differ structurally due to additional weight from the welding rod, gaps between the respective pieces of a compound surface that must be filled by the welding rod.<sup>4</sup> The structure of the golf club head of Chen cannot properly be considered to be identical to that defined by claims 1, 7 or 21.

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<sup>4</sup> In addition to the Hiruta Declaration, the specification of this application also evidences the structural differences between conventional welded structure, such as disclosed by Chen, and the claimed golf club head: weight variation between laser welding and conventional (e.g., TiG) welding (10:15-11:5 (comparative examples); 13:4-7), no cracking generated by laser welding followed by press forming ... (footnote continued)

For a prior art reference to anticipate a claim, the reference must disclose ***each and every element*** of the claim with ***sufficient clarity*** to prove its existence in the prior art. *Motorola, Inc. v. Interdigital Tech. Corp.*, 121 F.3d 1461, 1473 (Fed. Cir. 1997); *see also Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989), *cert. denied*, 493 U.S. 853 (1989); *Azko N.V. v. U. S. Int'l Trade Comm'n*, 808 F.2d 1471, 1479 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987). Although the disclosure requirement “presupposes the knowledge of one skilled in the art of the claimed invention, that presumed knowledge does not grant a license to read into the prior art reference teachings that are not there.” *Motorola*, 121 F.3d at 1461.

Moreover, “anticipation is not shown by a prior art disclosure which is only ‘substantially the same’ as the claimed invention.” *Jamesbury Corp. v. Litton Indus. Prods., Inc.*, 756 F.2d 1556, 1560 (Fed. Cir. 1985). Rather, the exclusion of a claimed element from a prior art reference is enough to negate anticipation by that reference. *See Atlas Powder Co. v. E.I. du Pont de Nemours & Co.*, 750 F.2d 1569, 1574 (Fed. Cir. 1984).

As evidenced by the foregoing, numerous ***structural differences*** exist between a conventionally welded golf club structure, and a golf club head in which a plurality of pieces of the striking face member are laser welded and press formed is performed on the plurality of metal pieces that are fixed by laser welding, as claimed. Thus, the Examiner’s assertion that

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((9:6-10; 12:26-13:4); lack of sink-like imperfection (9:11-13), and lack of heat induced distortion (4:4-10).

these features do not impart structural limitation, as alleged at page 10 of the Office Action, is incorrect, and Chen cannot anticipate the combination of features defined by claims 1, 7 and 21.

3. Product-by-process limitations must be given patentable weight, to the extent that a distinct and non-obvious structure is defined.

The Examiner's reliance on *In re Thorpe* and *In re Fessman* is misplaced. As shown below, the Examiner has failed to give proper consideration to the product-by-process limitations of claims 1, 7 and 21.

Product-by-process claims allow inventors to claim "an otherwise patentable product that resists definition by other than the process by which it is made." *Smithkline Beecham Corp. v. Apotex Corp.*, 439 F.3d 1312, 1315 (quoting *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 158 (1989)). Further, although a rule of necessity regarding the description of a product and the process by which it is made previously applied, the use of product-by-process claims even where the invention could have been described independent of the process has clearly been endorsed. See *Smithkline*, 439 F.3d at 1315.

However, neither *In re Thorpe* nor *In re Fessman* grant the Examiner license to ignore product-by-process limitations based on conclusory allegations of equivalent structure and unsupported conclusions of obviousness. The Federal Circuit held in *In re Thorpe* that the determination of patentability in "product-by-process" claims is ***based on the product itself***, even

though such claims are limited and defined by process.<sup>5</sup> Thus, the product in such claims is unpatentable only if it is the same as, or obvious from, a product of prior art, even if the prior product was made by a different process. (*See* Response filed April 14, 2005 at 6-8; *see also* *Smithkline*, 439 F.3d at 1317-18 (discussing the “rule” of *In re Thorpe* and finding anticipation where the “same product” was claimed.))

Here, the “same product” is not claimed—structural differences have been demonstrated. Product-by-process limitations must be given appropriate patentable weight to the extent these limitations define a distinct product. (*See* Response filed April 14, 2005 at 6-7.)

4. The Examiner has failed to provide a sufficient motivation to modify the disclosure of Chen.

In the grounds of rejection, the Examiner fails to set forth any motivation to modify the actual disclosure of Chen, which, as discussed above, fails to anticipate all the claim limitations. Further, in the Response to Arguments, the Examiner simply asserts, without support, that “there is nothing unobvious about laser welding club parts together over conventional welding techniques since laser welding is more precise and has less heat effecting area, which minimizes corrosion and cracking.” (Office Action at 10-11.)

Such an assertion, which is the conclusory opinion of the Examiner without objective evidence of the alleged motivation to modify the actual disclosure of Chen, is insufficient to

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<sup>5</sup> Unlike the present Appeal, where evidence of structural differences has been presented, the applicant in *In re Thorpe* did not assert that the product of his process was different from the product of the prior art. *In re Thorpe*, 777 F.3d at 697.

establish *prima facie* obviousness. Indeed, the asserted motivation does not even address the further feature of the **press forming** (claims 1 and 21) or **plastic working** (claim 7) performed on the plurality of metal pieces **after** they are fixed together by laser welding to form a curved surface portion of the striking face member (claims 1 and 7) or outside common surface (claim 21), as claimed. Rather, the only semblance of an alleged motivation is directed to conclusory statements regarding laser welding versus conventional welding, which does not account for all the claimed features deficient in Chen.

Deficiencies of cited references cannot be remedied by “general conclusions about what is ‘basic knowledge’ or ‘common sense.’” *In re Zurko*, 258 F.3d 1379, 1385 (Fed Cir. 2001); *see also In re Lee*, 277 F.3d 1338, 1345-46 (Fed. Cir. 2002). Further, as explained in M.P.E.P. § 2144.03, “[i]t is never appropriate to rely solely on ‘common knowledge’ in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based.”

In rejections under 35 U.S.C. § 103, the inquiry is “whether a person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem facing the inventor, would have been led to make the combination recited in the claims.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

Unsubstantiated speculation is not a substitute for objective evidence of a motivation to modify. Indeed, “rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *See KSR Int’l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1741

(2007) (quoting *In re Kahn*, 441 F.3d at 987-88); *see also Alza Corp. v. Mylan Labs., Inc.*, 464 F.3d 1286, 1290 (Fed. Cir. 2006) (“At its core, our anti-hindsight jurisprudence is a test that rests on the unremarkable premise that legal determinations of obviousness, as with such determinations generally, should be based on evidence rather than mere speculation or conjecture.”). The showing of a suggestion or motivation to modify a reference is likewise applicable when only one reference is relied upon. *See In re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000) (“Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference.”).

The case law emphasizes that the “need for specificity pervades this authority.” *In re Lee*, 277 F.3d at 1433 (citing *In re Kotzab*, 217 F.3d at 1371) (“particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed”)). However, in rejecting claim 1, the Examiner has failed to provide such specificity, or, for that matter, any objective evidentiary support for the assertion that modifying the actual disclosure of Chen in such a manner as to include features of laser welding the plurality of pieces of the striking face member *followed by* press-forming in the manner claimed would have been obvious. Rather, the record reflects the Examiner’s speculation and conjecture, which strongly suggests impermissibly hindsight reconstruction.

Thus, the rejection of claims 1, 7 and 21 based on the Examiner’s alternative contention under 35 U.S.C. § 103 is improper because the Examiner has not established *prima facie*



obviousness. Instead, the Examiner has impermissibly relied upon hindsight reconstruction without any objective evidence of a motivation to modify Chen beyond the bounds of its actual disclosure. The rejection should therefore be reversed.

***B. Chen – Dependent Claim 3***

Claim 3 depends from claim 1 and recites the feature of the metal pieces have different thicknesses. Thus, the plurality of metal pieces of the striking face member, which are fixed together by laser welding and press forming is performed to form the curved surface portion of the striking face member, are further defined as having different thicknesses. Chen does not disclose this feature, nor has the Examiner established *prima facie* obviousness.

Chen's teaching is directed to providing a top shell 30 comprising a titanium main piece 32' welded to an annular piece 34 made of stainless steel. (Chen at 2:32-48.) According to Chen, the top shell, by virtue of having the stainless steel annular piece, can be more "easily" welded to a stainless steel main body 20, thus providing the desired low center of gravity. (Chen at 2:54-57.) Chen's approach thus avoids the technical complications that arise when attempting to directly weld a titanium top shell to a stainless steel main body. (Chen at 1:9-24.)

Although Chen may suggest that ***different metals*** (i.e., stainless steel versus titanium—respectively having different densities) may be used for top shell 30 or front shell 60, Chen suggests nothing regarding the thicknesses of the different metals. Indeed, in rejecting claim 3, the Examiner asserts that, "Chen appears to show the metal pieces have the ***same thicknesses***," which is the converse of what the claim requires. (See Office Action at 4; emphasis added.)

Further, the Examiner's reliance on *In re Rose* is misplaced—*In re Rose* held that a claim limitation requiring “a composite package of appreciable size and weight requiring handling by a lift truck” did not patentably distinguish over prior art references showing packages capable of being “lifted by hand” because the limitation “at most relates to the size of the article under consideration which is not ordinarily a matter of invention.” *See In re Rose*, 220 F.2d 459, 463 (C.C.P.A. 1955). However, *In re Rose* cannot reasonably be construed as supporting the proposition that it would have been obvious to vary the relative thicknesses among the metal pieces themselves, such as in the plural metal pieces of the striking face member.<sup>6</sup>

The Examiner has failed to set forth any objective evidence that modifying Chen's structure such that the titanium stainless steel pieces differ in thickness would have been obvious, and the rejection is therefore improper.<sup>7</sup>

### ***C. Chen – Dependent Claims 37, 38 and 39***

Dependent claims 37, 38, and 39 respectively depend from claims 1, 7 and 21 and recite the features of laser welding is performed in the same plane on the plurality of metal pieces, which are fixed together by the laser welding as flat surfaces prior to the press forming (claims 1

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<sup>6</sup> Presumably, the Examiner intended to refer to M.P.E.P. § 2144.04 in his rejection. (*See Office Action* at 4.) However, this section likewise does not address modifying a structure such that the thicknesses of a component comprised of plural elements varies amongst the elements themselves. Claim 3 is not properly characterized as reciting a mere change of size or proportion.

<sup>7</sup> The Examiner apparently did not reject dependent claim 9 under any theory based on Chen. Claim 9 likewise recites the “different thicknesses” feature of claim 3 but depends from claim 7. Appellant nonetheless submits that claim 9 would be allowable at least for reasons analogous to those discussed with respect to claim 3.

and 21) or plastic working (claim 7) to form the curved surface portion of the striking face member (claims 1 and 7) or outside common surface (claim 21).

As noted above, Chen does not disclose laser welding of a plurality of metal pieces for its striking face (i.e., main piece 62) or arcuate piece 64. (*supra*, Sec. VII.A.1.) Chen further does not disclose that laser welding is performed “in the same plane”, nor does Chen disclose the claimed fixing together as flat pieces by the laser welding as flat surfaces prior to the press forming, as recited by these claimed. (*see also* Sec. VII.A.2-3, *supra*.) Likewise, the Examiner has not provided a sufficient motivation to modify Chen beyond the bounds of its actual disclosure for reasons analogous to those set forth above. (*supra*, Sec. VII.A.4.)

The rejection of claims 37-39 should therefore be reversed.

***D. Chen – Claim 24***

Independent claim 24 defines a golf club of wood-type having a hollow head body, comprising, *inter alia*, a shaft, and a metal head attached to the shaft, wherein the metal head comprises a body having an opening in which a crown member is disposed, the crown member including a plurality of metal pieces. As further recited, the metal pieces appear on *an outside surface of the crown member* and are fixed together by laser welding and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the crown member.

As noted above, Chen does not disclose laser welding of a wood golf club head structure, nor does Chen disclose press forming of a laser welded structure, which provides structural

differences over a conventionally welded structure. (*supra*, Sec. VII.A.2-3.) Rather, Chen teaches providing a top shell 30 comprising a titanium main piece 32' welded to an annular piece 34 made of stainless steel so that the top shell can be more easily welded to a stainless steel main body of a wood golf club head. (Chen at 2:32-48.) Further, the Examiner has failed to establish *prima facie* obviousness, as there is no objective evidence of record to suggest that modifying the disclosure of Chen so as to provide for the claimed laser welding and press forming of the laser welded plurality of metal pieces on a crown member would have been obvious, for reasons analogous to those discussed above. (*supra*, Sec. VII.A.4.)

The rejection of claim 24 based on Chen should therefore be reversed.

***E. Chen – Dependent Claim 40***

Claim 40 depends from claim 24 and recites the feature that laser welding is performed in the same plane on the plurality of metal pieces, which are fixed together by the laser welding as flat surfaces prior to the press forming to form the curved surface portion of the crown member. Chen does not disclose laser welding of its top shell 30, as noted above, nor does Chen disclose laser welding of plural pieces of a crown member in the same plane prior to press forming. For reasons analogous to those discussed above with respect to claims 37-39 (*supra*, Sec. VII.C), Chen neither discloses nor renders the feature of claim 40 obvious, and the rejection should be reversed.

***F. Ciasullo – Independent Claim 24***

Ciasullo does not anticipate all the features of claim 24, and the Examiner has not established *prima facie* obviousness. For instance, Ciasullo does not disclose at least the feature of the metal pieces appear on *an outside surface of the crown member* and are fixed together by laser welding and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the crown member, as claimed. Indeed, in the grounds of rejection, the Examiner again fails to give proper patentable weight to all the claim limitations. In particular, the Examiner alleges as follows:

“Ciasullo discloses a wood-type golf-club head having a hollow head body comprising: a shaft (not shown but inherent feature of a golf club); a crown member 30 including a plurality of metal pieces (18, 22) [*sic*] are welded together to form a curved portion of the crown member (Col. 5, lines 15-24). The recitation with respect to “laser welding, press forming, forged, and rolled” is directed to the method of production, which does not impart structural limitation to the claimed apparatus. Note, the patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See *In re Whorpe* [*sic*], 777 F.2d 695, 698, 277 USPQ 964, 966 (Fed. Cir. 1985) and *In re Fessman*, 489 F.2d 742, 744, 180 USPQ 324 (CCPA 1974). See MPEP 2113.”  
(Office Action at 4-5; emphasis original.)

However, Ciasullo’s teaching is directed to explosion welding of golf club head structure, and does not suggest all the features of claim 24. (Response at 17-19). For instance, Ciasullo teaches that the pieces of the golf club that are bonded by explosion welding (i.e., the sole pate and rearward top plate member) are cut from the titanium/stainless steel bonded sheet, the

remaining parts are cut from standard titanium sheets, and the pieces are forged into their desired shapes, spot welded in place, and then welded in an argon gas chamber. Thus, contrary to the product-by-process limitations of claim 24, Ciasullo teaches that forging is performed *prior to welding* of the pieces of the crown (i.e., forward top plate member 18 and rearward top plate member 22), which is plainly inconsistent with the claim recitation.

Moreover, Ciasullo likewise fails to suggest laser welding of the plurality of metal pieces of the crown member. Rather, Ciasullo teaches that titanium and stainless steel are bonded by *explosion welding* to form rearward top plate member 22, and the rearward top plate member 22 is spot welded to the forward top plate member 18 *after the forging process*, and the pieces of the club are welded in an argon gas chamber, which is followed by grinding and polishing steps. (Ciasullo at 5:21-25.)

As discussed in greater detail in the previously submitted 132 Declaration, explosion welding, as described in Ciasullo, is a technique for joining a metal piece to another metal piece which lies over it. However, the structure of a surface member of a wood golf club including multiple metal pieces that are forged (i.e., shaped) *prior to* welding by conventional means is structurally distinct from a laser welded structure followed by press forming, as discussed above. (Decl. at 7-8; Response at 19-21.)

Thus, the laser welding of plural pieces of the crown member, followed by press forming of the laser welded pieces, is structurally distinct from the golf club of Ciasullo. Ciasullo thus does not disclose all the features of claim 24. Further, the Examiner has failed to provide any

objective evidence that modifying Ciasullo to use laser welding followed by press forming would have been obvious.

Accordingly, as Ciasullo neither anticipates all the features of claim 24, nor has the Examiner established *prima facie* obviousness, the rejection of claim 24 is improper.

***G. Ciasullo – Dependent Claim 40***

Dependent claim 40 depends from claim 24 and recites the features of the laser welding is performed in the same plane on the plurality of metal pieces, which are fixed together by the laser welding as *flat surfaces* prior to the press forming. The Examiner has not given proper weight to these features, and the rejection is improper. Indeed, Ciasullo plainly teaches the opposite of the claim limitation. As previously noted, Ciasullo teaches that forging is performed prior to welding, which is plainly inconsistent with laser welding in the *same plane*, followed by press forming. (See Sec. VII.F, *supra*.) The rejection of claim 40 should therefore be reversed.

***H. Kosugi in view of Shaw – Claims 1, 7, and 21***

With respect to independent claims 1, 7, and 21, the rejection of these claims is improper because the Examiner has not established *prima facie* obviousness. The combination of Kosugi and Shaw fails to teach all the claimed features and the asserted motivation to combine is impermissibly premised on hindsight reconstruction.

For instance, in rejecting independent claim 1, the Examiner alleges as follows:

“Regarding claims 1, 7, and 15-23, Kosugi et al. discloses a golf [*sic*] hollow golf club head (Fig. 1) comprising: a shaft (S) and a metal head (1) attached to the shaft, wherein the metal head comprises a body (22,23) having an opening in which a striking

face member (21), wherein the face member 21 is [sic] press forming, forging, and plastic working (Col. 3, lines 25-30) from a rolled material to form a smooth, curved surface portion (Fig. 2) of the striking face member (21) and the body parts (21,22,23) are welded to form an integral unit (Col. 2, lines 60-64).”  
(Office Action at 5-6.)

As conceded by the Examiner, Kosugi does not disclose a striking face member made from a plurality of metal pieces fixed together by laser welding. However, the Examiner further contends:

“Kosugi et al. fails to disclose the striking face member is made from a plurality of metal pieces [sic] are fixed together by laser welding. Shaw teaches a metal face plate (Col. 2, lines 13-20) can be made of one or more component(s) (Col. 1, lines 42-58 and Figs. 23-26), which are welded together (Col. 4, lines 23-29). Such multi-piece face component(s) provide a golf club with different properties such as weight distribution, friction, spin rates, flexural modulus, resilience, and hardness, and aesthetic appearance (Col. 2, lines 13-17, Col. 2, lines 39-43), [sic] Col. 3, lines 35-45). Thus, it would have been obvious in view of Shaw to one having ordinary skill in the art to modify the striking face member of Kosugi with a face member with a plurality of pieces as taught by Shaw to gain the above benefits.”  
(Office Action at page 6.)

The Examiner again fails to give proper weight to the process limitations regarding laser welding and press forming/plastic working of multiple piece surfaces, such as the striking face member of claims 1 and 7 and the outside common surface of claim 21, and the Examiner has impermissibly relied on improper hindsight reasoning as the basis to combine Kosugi and Shaw.

For instance, Kosugi teaches a wood type golf club in which the ball striking shell part 21, top surface shell part 22 (i.e., crown), and peripheral surface shell part 23 (i.e., sole) are each



formed as separate single piece members and welded together to form an integral ball-striking member 20. (Kosugi at 2:45-64 and Figs. 1 and 2.) Further Kosugi teaches that shaft insertion member 30 of hosel 3 is has microscopic pores such that the density of the shaft insertion member is lower than ball striking member 20, which provides improved ball striking characteristics by varying the relative densities between the ball striking member and the shaft insertion member. (Kosugi at 3:57 – 4:9.)

As the Examiner concedes, Kosugi does not suggest a striking face member comprised of a plurality of metal pieces. Rather, as noted above, the striking shell part is taught as being a *single piece* structure. To compensate for this deficiency, the Examiner turns to Shaw. However, the combination of Kosugi and Shaw is improper and fails to teach or suggest all the features of these claims.

Indeed, Shaw's teaching is limited to *iron-type golf clubs*. The reference does not mention putters, nor does the reference mention wood-type golf clubs. The actual scope of the teaching of Shaw is clearly evidenced by the disclosure of the reference itself. Shaw explicitly states, "An object of the present invention is to improve the performance characteristics of *golf irons*." (Shaw at 1:29-30.)<sup>8</sup> Shaw does not include wood golf clubs in its drawings or written

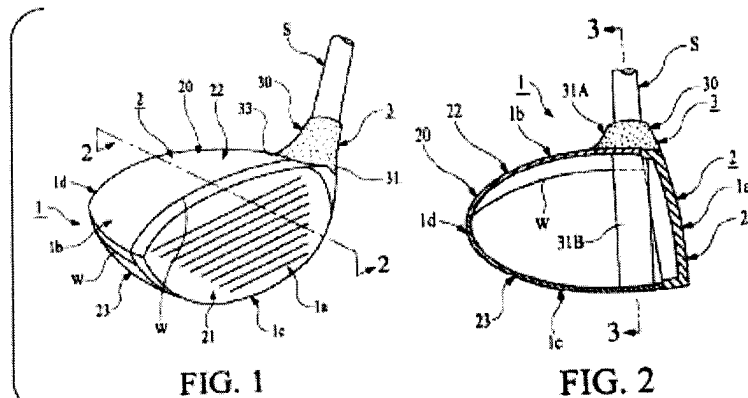
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<sup>8</sup> Shaw further states, in his background, that "[t]he present invention relates to the head structure of golf clubs, particularly golf irons and is directed more particularly to club heads with varying specific gravity," evidencing the disclosure focusing on a particular aspect of iron golf club structure (See Shaw at 1:18-20.)

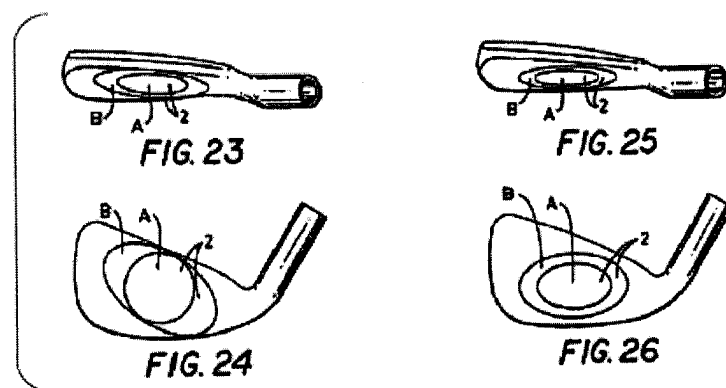
description, and there is no suggestion that the teaching for iron golf club striking faces could be applicable to another type of golf club.

As discussed in the 132 Declaration, *significant* differences both in structure and design considerations exist between iron golf clubs and wood golf clubs. Thus, the structure of a iron golf is not readily interchangeable with that of a wood golf club, as the Examiner alleges. (Decl. at 8.) Indeed, one need look no further than the figures to appreciate the different structure the Examiner attempts to impermissibly interchange:

**Wood golf club head  
structure of Kosugi**



**Iron golf club head  
structure of Shaw**



For instance, an iron golf club, as in Shaw, does not have shell pieces that define a hollow cavity, as in the hollow inner structure of a wood golf club. Also, the face-plate thickness of an

iron is much thicker than a face plate of a wood golf club due to the increased weight of an iron club and the different shape. Further, since the force on striking face of an iron golf club head is small when the golf ball is hit, the face of the iron is unlikely to deform. Thus, as disclosed by Shaw at column 4, lines 23-29, it is possible to use all sorts of bonding. (Decl. at 8.)

By contrast, the thickness of a wood golf club striking face is much thinner. Further, since the force on the wood is relatively large when the ball is hit, the face of the wood golf club head is likely to undergo deformation. As a result, a strong welding method is important in wood golf clubs. However, since the face is thin, it is difficult to perform ordinary bonding. Thus, the characteristics and constraints of wood golf club and iron golf club designs differ significantly and the structure of an iron golf club striking face cannot readily be applied to a wood golf club. (Decl. at 8; Response at 28-29.)

Further, Shaw's welding of an iron golf club head necessarily involves a back portion which is not present in a wood golf club head, such as taught by Kosugi. (Shaw at Figs. 29 and 32.) The Examiner's rejection fails to establish in any cogent manner how the teaching of an iron type striking face could be modified to be applied to a wood golf club head. Rather, the Examiner has improperly relied upon hindsight reconstruction to combine the unrelated teachings of Shaw and Kosugi.

Moreover, the combination is improper because Kosugi teaches away from the claimed invention. As noted above, Kosugi teaches that the striking face member, as well as the crown member and sole member, are each *single* piece structures. Again, the Examiner has failed to

provide objective evidence that modifying the single piece striking face member of Kosugi based on the teaching of a golf iron striking face would have been obvious.

As with the rejection of claims 1, 7, 21 and based on Chen, the Examiner is not giving proper weight to the recitations of laser welding followed by press forming/plastic working. Thus, the structure of the golf club defined by claims 1, 7 and 21 not only different from that suggested by Kosugi and Shaw, but the asserted motivation to combine their disparate teachings is improper, being based on impermissible hindsight reconstruction.

Reversal of the rejection of claims 1, 7, and 21 is requested.

***I. Kosugi in view of Shaw – Dependent Claims 3 and 9***

Claim 3 depends from claim 1 and recites the feature of the metal pieces have different thicknesses. Claim 9 depends from claim 7 and recites the compounded metal plate is fabricated by fixing together metal pieces that have different thicknesses. The rejection of these claims is improper at least because the motivation to combine their disparate teachings is improper, for reasons discussed above. (Sec. VII.H, *supra*.)

Further, the Examiner has not identified, nor does Shaw disclose, a striking face member having pieces with different thicknesses, as claims 3 and 9 require. The Examiner's citation to 2:39-63 does not support his contention, as this passage mentions nothing regarding differing thicknesses among plural elements of the iron golf club head face. Thus, even if Shaw were combined with Kosugi, the features of claims 3 and 9 would not be taught, and the rejection is in error.

***J. Kosugi in view of Shaw – Dependent Claims 15 and 16***

Claims 15 and 16 respectively depend from claims 1 and 7 and recite the feature of the plurality of metal pieces are greater than two. Thus, the striking face member of the wood golf club head of claims 1 and 7 is further defined to have a plurality of metal pieces being greater than two pieces. The feature of claims 15 and 16 would not have been obvious in view of Kosugi in view of Shaw and the rejection is improper.

As noted above, Kosugi teaches a wood golf club in which the striking face is a single piece structure. Shaw, on the other hand, never discloses a wood golf club striking face, but teaches iron golf club heads which differ significantly from wood golf club and have different design constraints, as noted above. (Sec. VII.H, *supra*.)

The Examiner has failed to provide a sufficient motivation to combine these disparate teachings, and the rejection should be reversed.

***K. Peterson - Claim 27***

With respect to independent claim 27, Peterson neither anticipates all the claimed features, nor has the Examiner established *prima facie* obviousness.

For instance, Peterson fails to suggest *at least* the feature of the metal pieces being fixed together by laser welding and the press forming performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the side wall member, as claimed. As with the rejections based on Chen, the Examiner does not give proper weight to the product-by-process limitations. The golf club of claim 27 is structurally distinct from Peterson because Peterson does not disclose laser welding of a plurality of metal pieces on an outside surface of a

side wall member, and press forming performed on the plurality of metal pieces fixed together to form the curved surface portion. Rather, the conventional welding of Peterson is similar to that discussed with respect to Chen, and thus, the above arguments regarding structural differences resulting from laser welding and press forming are likewise applicable.

Further, Peterson's teaching of either casting from the same material or separately constructing the detachable cap 36, which is attached to skirt 30, is inconsistent with the claimed laser welding of the plurality of metal pieces followed by press forming the metal pieces that are fixed by laser welding to form a curved surface portion. (Response at 23-24.) Indeed, as taught by Peterson, in order for the cap to be produced of a different material, then the cap would be separately constructed and then welded.

Moreover, the Examiner, as with the rejections based on Chen, has failed to provide a sufficient motivation to modify the actual disclosure of Peterson so as to arrive at the claimed combination. Rather, the asserted motivation lacks any objective evidence suggesting that one of ordinary skill would have modified Peterson beyond the bounds of the disclosure itself. The Examiner has again relied upon impermissible hindsight reconstruction based on knowledge gleaned solely from Applicant's disclosure.

Accordingly Peterson neither anticipates all the features of claim 27 and the Examiner has not established *prima facie* obviousness. The rejection of claim 27 should therefore be reversed.

***L. Peterson – Dependent Claim 41***

Claim 41 depends from claim 40 and further recites the features of laser welding is performed in the same plane on the plurality of metal pieces, which are fixed together by the laser welding as flat surfaces prior to the press forming to form the curved surface portion of the side wall member. Peterson would teach the opposite of the requirement of claim 41 because, as noted above, Peterson teaches either casting from the same material or separately constructing the detachable cap 36, which is attached to skirt 30. (Sec. VII.K, *supra*.)

Thus, Peterson would not suggest laser welding in the same plane followed by press forming, as claim 41 requires, which provides structural differences from Peterson's golf club. Likewise, the Examiner has failed to provide a sufficient motivation to modify the disclosure of Peterson, for reasons analogous to those discussed above. The rejection of claim 41 should therefore be reversed.

***M. Galy - Claim 30***

Independent claim 30 defines a golf club comprising a sole member which includes a plurality of metal pieces, wherein the metal pieces appear on an outside surface of the sole member and are fixed together by laser welding and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the sole member. Galy fails to anticipate all the claimed features, at least because the structure defined by these claims is not disclosed by Galy, and the Examiner has failed to establish *prima facie* obviousness.

For instance, Galy neither teaches that metal pieces are fixed together by laser welding, nor does Galy teach that press forming is performed on the plurality of metal pieces that are

fixed together to form a curved surface portion, as claimed. Indeed, Galy teaches that an arc-shaped portion 32 is *separately formed* and then attached to the sole plate 11. (Galy at 4:42-59.) Galy thus teaches the opposite of what the claim requires. There is no suggestion that the arc shaped portion is laser welded, as claimed, and press forming is then performed on the laser welded structure. (Response at 24-25.)

Thus, the structure defined by claim 30, which requires laser welding of the plurality of pieces of the sole member, followed by press forming, is structurally distinct from the separately formed pieces of Galy which are attached *after being formed*. Also, the Examiner has failed to establish that modifying Galy so as to provide a laser welded and press formed structure would have been *prima facie* obvious, at least for reasons analogous to those discussed above with respect to Chen. (Sec. VII.A.4, *supra*.) The rejection of claim 30 should therefore be reversed.

***N. Galy – Dependent Claim 42***

Claim 42 depends from claim 30 and recites the features of laser welding is performed in the same plane on the plurality of metal pieces, which are fixed together by the laser welding as flat surfaces prior to the press forming to form the curved surface portion of the sole member. Galy would teach the opposite of the requirement of claim 42 because, as noted above, Galy teaches that an arc-shaped portion 32 is *separately formed* and then attached to the sole plate 11. (Sec. VII.M, *supra*.)



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Further, the Examiner has failed to provide a sufficient motivation to modify the disclosure of Galy, for reasons analogous to those discussed above. The rejection of claim 42 should therefore be reversed.

**Conclusion**

Unless a check is submitted herewith for the fee required under 37 C.F.R. §41.37(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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Date: **July 2, 2007**

**CLAIMS APPENDIX**

CLAIMS 1, 3-7, 9-12 and 15-48 ON APPEAL:

1. A golf club of wood-type having a hollow head body, comprising:  
a shaft; and  
a metal head attached to the shaft, wherein the metal head comprises a body having an opening in which a striking face member is disposed, the striking face member including a plurality of metal pieces; and  
wherein said plurality of metal pieces are fixed together by laser welding and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the striking face member.
3. A golf club according to claim 1, wherein the metal pieces have different thicknesses.
4. A golf club according to claim 1, wherein the metal pieces are made of different metals.
5. A golf club according to claim 4, wherein the difference in melting temperature between the metal pieces is 250°C or less.

6. A golf club according to claim 4, wherein at least 60% of the respective metal pieces are made of the same metal.

7. A golf club of wood-type having a hollow head body, comprising:  
a shaft; and

a metal head attached to the shaft, wherein the metal head comprises a body having an opening in which a striking face member is disposed, the striking face member including a portion formed through plastic working of a compounded metal plate fabricated through joining a plurality of metal pieces made of forged or rolled material by laser welding; and

wherein the compounded metal plate is fabricated by fixing together by laser welding the metal pieces so that the metal pieces appear on an outside common surface of the striking face member of the head and the plastic working is performed on the compounded metal to form a curved surface portion of the striking face member.

9. A golf club according to claim 7, wherein the compounded metal plate is fabricated by fixing together metal pieces that have different thicknesses.

10. A golf club according to claim 7, wherein the compounded metal plate is fabricated by fixing together metal pieces made of different metals.

11. A golf club according to claim 10, wherein the difference in melting temperature between the metal pieces is 250°C or less

12. A golf club according to claim 10, wherein at least 60% of the respective metal pieces are made of the same metal.

15. The golf club according to claim 1, wherein said plurality of metal pieces are greater than two.

16. The golf club according to claim 7, wherein said plurality of metal pieces are greater than two.

17. The golf club according to claim 1, wherein said plurality of metal pieces include an inner piece and an outer piece surrounding the inner piece.

18. The golf club according to claim 7, wherein said plurality of metal pieces include an inner piece and an outer piece surrounding the inner piece.

19. The golf club according to claim 1, wherein the metal pieces fixed together by laser welding form a smooth continuous surface.

20. The golf club according to claim 1, wherein the striking face member is formed by plastic working the metal pieces after the metal pieces are fixed together by laser welding.

21. A golf club of wood-type having a hollow head body, comprising:  
a shaft; and  
a metal head attached to the shaft, wherein the metal head comprises a plurality of metal pieces; and

wherein the plurality of metal pieces are on an outside common surface of the head and are fixed together by welding, the welding process resulting in a smooth continuous outside common surface,

wherein press forming is performed on the plurality of metal pieces that are fixed together by laser welding to form a curved surface of the outside common surface of the head.

22. The golf club according to claim 21, wherein the plurality of metal pieces are made of forged or rolled material.

23. The golf club according to claim 1, wherein the striking face member is fixed to the opening of the body by welding.

24. A golf club of wood-type having a hollow head body, comprising:

a shaft; and

a metal head attached to the shaft, wherein the metal head comprises a body having an opening in which a crown member is disposed, the crown member including a plurality of metal pieces; and

wherein the metal pieces appear on an outside surface of the crown member and are fixed together by laser welding and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the crown member.

25. The golf club according to claim 24, wherein the metal pieces are made of forged or rolled material.

26. The golf club according to claim 24, wherein the crown member is fixed to the opening of the body by welding.

27. A golf club of wood-type having a hollow head body, comprising:

a shaft; and

a metal head attached to the shaft, wherein the metal head comprises a body having an opening in which a side wall member is disposed, the side wall member including a plurality of metal pieces; and

wherein the metal pieces appear on an outside surface of the side wall member and are fixed together by laser welding and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the side wall member.

28. The golf club according to claim 27, wherein the metal pieces are made of forged or rolled material.

29. The golf club according to claim 27, wherein the side wall member is fixed to the opening of the body by welding.

30. A golf club of wood-type having a hollow head body, comprising:  
a shaft; and  
a metal head attached to the shaft, wherein the metal head comprises a body having an opening in which a sole member is disposed, the sole member including a plurality of metal pieces; and

wherein the metal pieces appear on an outside surface of the sole member and are fixed together by laser welding and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the sole member.

31. The golf club according to claim 30, wherein the metal pieces are made of forged or rolled material.

32. The golf club according to claim 30, wherein the sole member is fixed to the opening of the body by welding.

33. The golf club according to claim 1, wherein the striking face member is formed by applying post-machining to the metal pieces after the metal pieces are fixed together by laser welding.

34. The golf club according to claim 33, wherein the striking face member is made by press forming the metal pieces after the metal pieces are fixed together by laser welding.

35. The golf club according to claim 21, wherein the outside common surface is formed by applying post-machining to the metal pieces after the metal pieces are fixed together by laser welding.

36. The golf club according to claim 35, wherein the outside common surface is made by press forming the metal pieces after the metal pieces are fixed together by laser welding.



37. The golf club according to claim 1, wherein laser welding is performed in the same plane on the plurality of metal pieces, which are fixed together by the laser welding as flat surfaces prior to the press forming to form the curved surface portion of the striking face member.

38. The golf club according to claim 7, wherein laser welding is performed in the same plane on the plurality of metal pieces, which are fixed together by the laser welding as flat surfaces prior to the plastic working to form the curved surface portion of the striking face member.

39. The golf club according to claim 21, wherein laser welding is performed in the same plane on the plurality of metal pieces, which are fixed together by the laser welding as flat surfaces prior to the press forming to form the curved surface portion of the outside common surface.

40. The golf club according to claim 24, wherein laser welding is performed in the same plane on the plurality of metal pieces, which are fixed together by the laser welding as flat surfaces prior to the press forming to form the curved surface portion of the crown member.

41. The golf club according to claim 27, wherein laser welding is performed in the same plane on the plurality of metal pieces, which are fixed together by the laser welding as flat surfaces prior to the press forming to form the curved surface portion of the side wall member.

42. The golf club according to claim 30, wherein laser welding is performed in the same plane on the plurality of metal pieces, which are fixed together by the laser welding as flat surfaces prior to the press forming to form the curved surface portion of the sole member.

43. The golf club according to claim 1, wherein the plurality of metal pieces have the same thickness.

44. The golf club according to claim 7, wherein the plurality of metal pieces have the same thickness.

45. The golf club according to claim 21, wherein the plurality of metal pieces have the same thickness.

46. The golf club according to claim 24, wherein the plurality of metal pieces have the same thickness.

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47. The golf club according to claim 27, wherein the plurality of metal pieces have the same thickness.

48. The golf club according to claim 30, wherein the plurality of metal pieces have the same thickness.

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**EVIDENCE APPENDIX:**

Pursuant to 37 C.F.R. § 41.37(c)(1)(ix), submitted herewith are copies of any evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 or any other evidence entered by the Examiner and relied upon by Appellant in the appeal.

- Declaration Under 37 C.F.R. § 1.132 of Mr. Masaomi Hiruta, presented with Appellant's Response Under 37 C.F.R. § 1.111, filed September 28, 2006 (copy attached).

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Attorney Docket No.: Q67539  
U.S. Application No.: 10/000,219

**RELATED PROCEEDINGS APPENDIX**

Submitted herewith are copies of decisions rendered by a court or the Board in any proceeding identified about in Section II pursuant to 37 C.F.R. § 41.37(c)(1)(ii).

- NONE.

**PATENT APPLICATION**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of

Docket No: Q67539

Masafumi NISHITANI, et al.

Appln. No.: 10/000,219

Group Art Unit: 1764

Confirmation No.: 9175

Examiner: Thanh P. DUONG

Filed: December 4, 2001

For: GOLF CLUB

**SUBMISSION OF APPEAL BRIEF**

**MAIL STOP APPEAL BRIEF - PATENTS**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an Appeal Brief. The statutory fee of \$500.00 is being charged to Deposit Account No. 19 4880 via EFS Payment Screen. The USPTO is also directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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Date: July 2, 2007